

we have examined (B. M. coll. no. 96. 9. 23. 5) reaches a total length of only 127.5 millim. The females exhibit the same characters, but are smaller. In conclusion, it may be noted that we have examined specimens from Kamtchatka, the Aleutian and Commander Islands, Lapland, Norway, Spitzbergen, Iceland, and Greenland.

Dimensions of the type of *C. lagopus spitzbergenensis*, a female collected in Spitzbergen by Dr. J. W. Gregory (B. M. coll. no. 96. 9. 23. 3):—Basal length 109 millim.; greatest length 118.5; greatest breadth 66; length of palate 56; length of nasals 38; length of lower jaw 86.

XLIX.—*A Review of the Species of the Genus Hebomoia, a Group of Pierine Butterflies.* By ARTHUR G. BUTLER, Ph.D., F.L.S., F.Z.S., &c.

THIS genus, of which the Museum collection now contains all the known forms, consists chiefly of a series of fairly well-defined geographical modifications, mostly inhabiting different islands, and consequently exhibiting a degree of constancy in their often slight distinctive characters which gives them some title to be regarded as diverse species. Several of these species were named by Wallace in 1863, in a paper published by him in the 'Journal of Entomology'; but in his "Revision of Oriental Pierinæ," published four years later in the 'Transactions of the Entomological Society,' he ignored all but two of them, not even quoting the names which he had given, in his synonymy.

It has been generally considered that one species of *Hebomoia* is distributed over the whole of India, Burma, China, and Ceylon; but a study of our present fine series has convinced me that this is not correct, inasmuch as the forms of Northern and Southern India differ quite as much as typical *H. glaucippe* does from its representative forms in some of the islands.

The seasonal forms of *Hebomoia* do not seem to be very strongly defined even on the Continent, and probably in the insular species they are unrepresented.

I. *H. glaucippe* group.

Wings above milky white, rarely tinted towards the borders with brimstone-yellow: primaries of males with a broad triangular orange apical patch, broadly bordered externally and,

sometimes internally with black-brown, and crossed by a more or less prominent series of sagittate blackish spots: secondaries frequently with black spots, especially towards apex; the apex of the primaries in the female black-brown, crossed by a more or less broad oblique orange belt, followed by a transverse series of orange spots.

1. *Hebomoia glaucippe*.

Papilio glaucippe, Linnæus, Mus. Lud. Ulr. p. 240 (1764).

Papilio callirrhoe, Fabricius, Syst. Ent. p. 473 (1775).

North-eastern India*, Burmah southwards to Malacca, China.

The dry form differs from the wet in its inferior size, more falcate primaries, and the often browner and always less strongly reticulated character of apex of primaries and the secondaries on the under surface.

2. *Hebomoia australis*, sp. n.

The Southern representative of *H. glaucippe*. It differs in the feeble indication or entire absence of the black inner edging to the orange apical patch of the males and in the reduction of this edging in the females. In size it corresponds with the more widely distributed form.

Southern India from Mysore south-eastwards to Ceylon.

Our series of *H. glaucippe* consists of forty selected examples in addition to four in the Hewitson collection. Of *H. australis* we have fifteen examples.

3. *Hebomoia javanensis*.

Iphias javanensis, Wallace, Journ. Entom. ii. p. 3 (1863).

Java. Six examples. B. M.

A small representative of *H. glaucippe* in which the under-surface colouring of the secondaries and apex of primaries is slightly more tinted with sienna.

4. *Hebomoia lombockiana*, sp. n.

Intermediate in character between *H. glaucippe* and *H. timoriensis*; the outer border and transverse spotting of the apical patch of the primaries being similar to that of the former, but the form of the inner edge of this patch irregularly zigzag as in the latter, and with a sulphur-yellow border,

* We have one example labelled "Malabar," but this locality is vague and perhaps incorrect.

its inferior extremity edged with blackish in the male and its entire inner edging blackish in the female: the under-surface colouring is somewhat more golden than in either species.

Size similar to that of *H. timoriensis*.

Lombok (*Wallace*). One pair. B. M.

This has as much claim to a distinct name as any of the other insular representatives of *H. glaucippe*.

5. *Hebomoia timoriensis*.

Iphias timoriensis, Wallace, Journ. Entom. ii. p. 3 (1863).

Timor (*Wallace*). Four specimens B. M.; one coll. Hewitson.

Costal margin of primaries rather longer than in the preceding, border of orange patch narrower and transverse spots very small; no blackish inner edging, but a well-marked diffused sulphur-yellow border: secondaries of male without marginal spots: reticulation of under surface rather denser than in *H. glaucippe*.

6. *Hebomoia philippensis*.

Iphias philippensis, Wallace, Journ. Entom. ii. p. 3 (1863).

Philippine Islands. Fifteen specimens B. M.; one coll. Hewitson.

Size of the preceding, the inner edging of the orange patch similarly formed, but sometimes partly margined with blackish (more often without this margin in both sexes), the yellow diffused border of the male usually extending far back into the wing, the secondaries often washed with sulphur-yellow on the outer border, the whole surface of the female often suffused with sulphur-yellow; the outer border and spots on the primaries much as in *H. glaucippe*, the marginal spots towards apex of secondaries often present. Under surface like that of *H. glaucippe*.

7. *Hebomoia celebensis*.

Iphias celebensis, Wallace, Journ. Entom. ii. p. 3 (1863).

Celebes.

Very like typical *H. glaucippe*, but with longer costal margin to the primaries and the blackish inner edging of the orange apical patch nearly or quite as wide as the outer border; the black spots towards apex of secondaries squamose, but extending for some distance up the nervures. We have six examples.

Some lepidopterists will probably regard the preceding seven forms as mere local variations of *H. glaucippe*. In any case it is far more convenient that they should have distinctive names; and as Wallace set the example, I have thought it best to complete his work by naming the two forms which he overlooked.

II. *H. borneensis* group.

Very like the preceding group, but the male with the apex of the primaries black, crossed by a broad belt of orange, traversed by the usual black spots, that of the female black, crossed by a narrow oblique milk-white or orange bar, followed by three or four spots of the same colour parallel to outer margin; markings below more dusky brown than in the species of group I.

8. *Hebomoia borneensis*.

Iphia *borneensis*, Wallace, Journ. Entom. ii. p. 3 (1863).

Borneo. Eighteen examples B. M.; three coll. Hewitson.

9. *Hebomoia sulphurea*.

Iphia *sulphurea*, Wallace, Journ. Entom. ii. p. 5 (1863).

Iphia *Felderi*, Vollenhoven, Monog. Pier. p. 53, pl. vi. figs. 2, 3 (1865).

Batchian and Gilolo. Three males (ex coll. Godm. and Salv.), B. M.; ♂ ♀, coll. Hewitson.

Differs from *H. borneensis* in its superior size, sulphur-yellow colouring, and the orange instead of white bar across the apical patch in the female; ground-colour of secondaries and apical area of primaries on under surface bright golden ochraceous, but with dark brown markings.

III. *H. Vossii* group.

Primaries more distinctly triangular; wings above more or less gamboge-yellow; orange apical patch on primaries occupying nearly half the wing-surface.

10. *Hebomoia Roepstorffi*.

Hebomoia Roepstorffi, Wood-Mason, Journ. Asiat. Soc. Beng. xlix. 2, pp. 134, 150, and 235 (1880).

Andamans. Ten specimens B. M.; two coll. Hewitson.

Five of our examples, including two females, were received from the Godman and Salvin collection.

In this species the basal area of the wings is milk-white.

11. *Hebomoia Vossii*.

Iphias Vossii, Maitland, Tijd. Ent. ii. p. 25 (1859); Vollenhoven, Monog. Pier. p. 55, pl. vi. fig. 4 (1865).

Nias. Three males. B. M.

One of our specimens was received from the Godman and Salvin collection. The species is larger than *H. Roepstorffi*, and the ground-colour of the wings above is entirely gamboge-yellow; the ground-colour below is also yellower (less orange).

IV. *H. leucippe* group.

The orange apical patch extends nearly to the base of the discoidal cell of the primaries.

12. *Hebomoia leucogynia*.

Iphias leucogynia, Wallace, Journ. Entom. ii. p. 4, pl. i. figs. 1, 2 (1863).

♂ ♀, Bourou. Three specimens B. M.; two coll. Hewitson.

The internal area of the primaries and entire secondaries above pale sulphur-yellow; the female blackish and whiter above.

13. *Hebomoia leucippe*.

Papilio leucippe, Cramer, Pap. Exot. i. pl. xxxvi. A-C (1775).

Amboina and Ceram. Seven examples in B. M.; four in coll. Hewitson. Three of our specimens were received from the Godman and Salvin collection.

In this species the primaries are orange excepting at the base, which is yellow dusted with grey; the orange area on the female also is about as extensive as in the male of the preceding species; the secondaries are gamboge-yellow, and the latter, as well as the apical area of the primaries, deep cadmium-yellow on the under surface.

I consider *Ptychopteryx Lucasii*, Grand., to represent *Hebomoia* in Madagascar; both in general aspect and structure it is nearly related to the latter.